

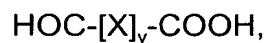
WO 2004/024775

PCT/EP2003/009150

- 9 -

Patent claims:

1. A method for producing temporarily crosslinked cellulose ethers having lump-free stirrability and solvation delay on stirring into aqueous solutions, which comprises first admixing cellulose ethers having free OH groups with chemical compounds containing at least one aldehyde group and at least one acid group and then reacting the acid groups and aldehyde groups of the chemical compounds with the OH groups of the cellulose ethers.
2. The method as claimed in claim 1, wherein the acid groups and aldehyde groups of the chemical compounds are reacted with the OH groups of the cellulose ethers to form an ester or hemiacetal bond.
3. The method as claimed in claim 1 or 2, wherein the chemical compound having at least one acid group and at least one aldehyde group is a compound of the general chemical formula



where X is a divalent alkylene group which has from 1 to 6 carbon atoms and can be saturated and straight-chain or branched, or a divalent saturated cyclo- or bicycloalkylene group having from 3 to 10 carbon atoms, or a divalent arylene group having from 6 to 10 carbon atoms, where these groups can further bear one or more substituents R which, in addition to hydrogen, can also be alkyl radicals having up to 4 carbon atoms, oxyalkyl radicals having up to 4 carbon atoms, OH groups, halogens, nitro groups, nitrile groups or mixtures thereof, and where y can be either 0, 1 or 2.

**REPLACED BY
ART 34 AMDT**

WO 2004/024775

PCT/EP2003/009150

- 10 -

4. The method as claimed in one or more of claims 1 to 3, wherein the chemical compound having at least one acid group and at least one aldehyde group is preferably glyoxylic acid.
5. The method as claimed in one or more of claims 1 to 4, wherein the amount of chemical compound containing at least one aldehyde group and at least one acid group is in the range from 0.01 to 0.1 mol per mole of cellulose ether, preferably from 0.02 to 0.08 mol per mole of cellulose ether.
6. The method as claimed in one or more of claims 1 to 5, wherein the aldehyde group and the acid group are reacted with the OH groups of the cellulose ethers in water or in an organic suspension medium, the cellulose ether not being dissolved in the water or in the suspension medium.
7. The method as claimed in one or more of claims 1 to 6, wherein, as cellulose ethers having free OH groups, use is made of methylcellulose, ethylcellulose, carboxymethylcellulose, hydroxyethylcellulose, hydroxypropylcellulose, methylhydroxyethylcellulose, methylhydroxypropylcellulose or ethylhydroxyethylcellulose.
8. The method as claimed in one or more of claims 1 to 7, wherein the cellulose ethers are admixed with the compound containing at least one aldehyde group and at least one acid group at a temperature in the range from 0 to 80 °C, preferably from 0 to 60 °C, particularly preferably from 0 to 40 °C, over a time period in the range of from 10 to 60 min, preferably from 20 to 40 min.
9. The method as claimed in one or more of claims 1 to 8, wherein the acid groups and the aldehyde groups are reacted with the OH groups

REPLACED BY
ART 34 AMDT

WO 2004/024775

PCT/EP2003/009150

- 11 -

of the cellulose ethers at a temperature in the range from 50 to 150 °C, preferably from 60 to 130 °C, over a time period in the range of from 1 to 120 min, preferably from 10 to 90 min, particularly preferably from 10 to 60 min.

5

10. The method as claimed in one or more of claims 1 to 9, wherein, as organic suspension media in which the cellulose ethers are admixed with the chemical compound containing at least one aldehyde group and at least one acid group, use is made of, in particular, acetone, lower alcohols having from 1 to 4 carbon atoms, diethyl ether and also ethers having alkyl chains having up to 8 carbon atoms per chain, or cyclic ethers such as dihydropyran, dihydrofuran, tetrahydrofuran or dioxane, ethylene glycol dimethyl ether, diethylene glycol dimethyl ether, triethylene glycol dimethyl ether, tetraethylene glycol dimethyl ether or straight-chain and branched hydrocarbons having up to 12 carbon atoms or cyclic compounds such as cyclopentane or cyclohexane, or aromatic compounds such as toluene, benzene or alkyl-substituted toluenes or benzenes.

20

REPLACED BY
ART 34 AMDT